AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph on page 6, line 2, to line 18, as follows:

Preferably, the pulse train generating means comprises a pulse train generating portion for converting an input data signal to a pulse train based on a predetermined encoding pattern, and outputting the pulse train, the optical modulating means comprises an optical modulating portion for converting the pulse train output from the pulse train generating portion to an optically intensity modulated signal and outputting the signal, the optical detecting means comprises an optical detecting portion for reconverting the optically intensity modulated signal transmitted on the optical transmission path to an electrical signal and outputting the signal, and the data signal extracting means comprises a radiating portion for radiating the electrical signal that is output from the optical detecting portion as a wireless signal, and a wireless terminal for extracting the pulse train from the wireless signal radiated from the radiating portion based on a decoding pattern that uniquely corresponds to the encoding pattern and demodulating the data signal.

Please amend the paragraph on page 7, line 18, to page 8, line 11, as follows:

Preferably, the pulse train generating means comprises a pulse train generating portion for converting an input data signal to a pulse train based on a predetermined encoding pattern, and outputting the pulse train, and a filter portion for increasing a pulse width of the pulse train output from the pulse train generating portion, or increasing a rising time and/or ~~and~~ a falling time of the pulse train, and outputting a result, the optical modulating means comprises an optical modulating portion for converting the pulse train output from the filter portion to an optically intensity modulated signal and outputting the signal, the optical transmission system further comprises a pulse compressing portion for receiving the optically intensity modulated signal transmitted in the transmission path, compressing a pulse width of a pulse train, which is modulation information, or reducing a rising time and/or a falling time of the pulse train, and outputting a result, wherein the optical detecting means comprises an optical detecting portion for converting an optical signal output from the pulse compressing portion to an electrical signal and outputting the signal.

Please amend the paragraph on page 11, line 24, to page 12, line 15, as follows:

For example, the optical balance detecting portion comprises a first optical detecting portion for reconverting one of the optical differential signals that are output from the optical interference portion to a first differential pulse train, which is an electrical signal, and outputting the signal; a second optical detecting portion for reconverting the other optical differential signal that is output from the optical interference portion to a second differential pulse train, which is an electrical signal, and outputting the signal; a delay portion for supplying a predetermined electrical delay amount to the first differential pulse train output from the first optical detecting portion and/or the second differential pulse train output from the second optical detecting portion and outputting a result; and a combining portion for combining the first differential pulse train and the second differential pulse train output from ~~that have been subjected to the delay processing in~~ the delay portion to output a bipolar differential pulse train.

Please amend the paragraph on page 12, line 22, to page 13, line 24, as follows:

For example, the optical interference portion comprises an optical splitting portion for splitting the input optically angle modulated signal into two, an optical delay portion for supplying a predetermined optical delay amount to one or both of the optically angle modulated signals that are split and output from the optical splitting portion and outputting a result, and an optical combining/splitting portion for combining the other optically angle modulated signal that is split and output from the optical splitting portion and an optically angle modulated signal that is output from the optical delay portion and splitting a result into two again so as to output optical differential signals having opposite polarities to each other, wherein the optical balance detecting portion comprises a first optical detecting portion for reconverting one of the optical differential signals that are output from the optical interference portion to a first differential pulse train, which is an electrical signal, and outputting the signal; a second optical detecting portion for reconverting the other optical differential signal that is output from the optical interference portion to a second differential pulse train, which is an electrical signal, and outputting the signal; a delay portion for supplying a predetermined electrical delay amount to the first differential pulse train output from the first optical detecting portion and/or the second differential pulse train output from the second optical detecting portion and outputting a result; and a combining portion for combining the first differential pulse train and the second

differential pulse train output from ~~that have been subjected to the delay processing in~~ the delay portion to output a bipolar differential pulse train.

Please amend the paragraph on page 18, line 1, to line 16, as follows:

Preferably, the optical transmission system further comprises a data optical modulating portion for converting a data signal having a lower rate than a repetitive cycle of pulse trains output from the plurality of pulse train generating portions to an optically modulated signal and outputting the signal, wherein the optical combining ~~synthesizing~~ portion further combines ~~synthesizes~~ the data signal output from the data optical modulating portion, and the data signal extracting means comprises a data separating portion for outputting the electrical signals output from the optical detecting portion separated into the data signal having a lower rate than the repetitive cycle of the pulse trains and other signals (hereinafter, referred to as "synthesized signal"), and a demodulating/separating portion for extracting the pulse trains from the synthesized signal output from the data separating portion based on decoding patterns that uniquely correspond to the plurality of encoding patterns and demodulating the data signals.

Please amend the paragraph on page 24, line 6, to line 19, as follows:

Preferably, the optical transmission system further comprises a filter portion that is provided each of the pulse train generating portions and the synthesizing portion and increases a pulse width of the pulse train output from the pulse train generating portion, or increases a rising time and/or ~~and~~ a falling time of the pulse train and outputs a result, and a pulse compressing portion for receiving the optically intensity modulated signal transmitted in the transmission path, compressing a pulse width of a pulse train, which is modulation information, or reducing a rising time and/or a falling time of the pulse train, and outputting a result, wherein the optical detecting means comprises an optical detecting portion for converting an optical signal output from the pulse compressing portion to an electrical signal and outputting the signal.

Please amend the paragraph on page 28, line 3, to line 19, as follows:

For example, the optical balance detecting portion comprises a first optical detecting portion for reconverting one of the optical differential signals that are output from the optical interference portion to a first differential pulse train, which is an electrical signal, and outputting

the signal; a second optical detecting portion for reconverting the other optical differential signal that is output from the optical interference portion to a second differential pulse train, which is an electrical signal, and outputting the signal; a delay portion for supplying a predetermined electrical delay amount to the first differential pulse train output from the first optical detecting portion and/or the second differential pulse train output from the second optical detecting portion and outputting a result; and a combining portion for synthesizing the first differential pulse train and the second differential pulse train output from ~~that have been subjected to the delay processing in~~ the delay portion to output a bipolar differential pulse train.

Please amend the paragraph on page 29, line 1, to page 30, line 3, as follows:

For example, the optical interference portion comprises an optical splitting portion for splitting the input optically angle modulated signal into two, an optical delay portion for supplying a predetermined optical delay amount to one or both of the optically angle modulated signals that are split and output from the optical splitting portion and outputting a result, and an optical combining/splitting portion for combining the other optically angle modulated signal that is split and output from the optical splitting portion and an optically angle modulated signal that is output from the optical delay portion and splitting a result into two again so as to output optical differential signals having opposite polarities to each other, wherein the optical balance detecting portion comprises a first optical detecting portion for reconverting one of the optical differential signals that are output from the optical interference portion to a first differential pulse train, which is an electrical signal, and outputting the signal; a second optical detecting portion for reconverting the other optical differential signal that is output from the optical interference portion to a second differential pulse train, which is an electrical signal, and outputting the signal; a delay portion for supplying a predetermined electrical delay amount to the first differential pulse train output from the first optical detecting portion and/or the second differential pulse train output from the second optical detecting portion and outputting a result; and a combining portion for synthesizing the first differential pulse train and the second differential pulse train output from ~~that have been subjected to the delay processing in~~ the delay portion to output a bipolar differential pulse train.

Please amend the paragraph on page 43, line 16, to page 44, line 4, as follows:

The pulse train that is output from the pulse train generating portion 111 is converted to an optically intensity modulated signal by the optical modulating portion 102 and is sent out to the optical transmission path 200. The pulse compressing portion 321 receives an optically modulated signal that is transmitted via the optical transmission path ~~104~~ 200, and compresses the modulation information (pulse width) thereof, that is, reduces the rising time and/or falling time of the modulation information, and outputs it. FIG. 3C is a diagram showing the time waveform of a pulse train (b) that is output from the pulse compressing portion 321 and the optical detecting portion 301. As shown in FIG. 3C, the pulse train (b) that is output from the pulse compressing portion 321 and the optical detecting portion 301 is a square pulse in which its pulse width is reduced.

Please amend the paragraph on page 44, line 5, to line 17, as follows:

For the pulse compressing portion 321, for example, a commonly used vehicle having wavelength dispersion characteristics such as single mode optical fibers can be used. For the optical modulating portion 102, a directly optical modulation scheme in which the current injected to a semiconductor laser is directly modulated is used. That is to say, the pulse compressing portion 321 compresses the modulation information, using the interaction between the property (wavelength sharpness) that the optical frequency (wavelength) is varied and the wavelength dispersion in the optically intensity modulated signal generated by the directly optical modulation scheme, so that the pulse width of the pulse train that is output from the optical detecting portion 301 ~~105~~ is reduced.

Please amend the paragraph on page 46, line 10, to line 17, as follows:

The pulse compressing portion 321 receives an optically modulated signal that is transmitted via the optical transmission path ~~104~~ 200, and compresses the modulation information (pulse width) thereof, that is, reduces the rising time and/or falling time of the modulation information, and outputs it. FIG. 4D is a diagram showing the time waveform of a pulse train (c) that is output from the pulse compressing portion 321 and the optical detecting portion 301.

Please amend the paragraph on page 63, line 23, to page 64, line 7, as follows:

Next, the operation of the transmission system 10 will be described. The configuration of this embodiment is similar to that of the seventh embodiment (see FIG. 7) described above, and therefore only different aspects will be described below. The synthesizing portion 161 synthesizes pulse trains output from the first and the second pulse train generating portions 141 and 142 and outputs the result. The optical modulating portion 162 converts the synthesized signal that is output from the synthesizing portion 161 to an optically modulated signal and sends it out to the optical transmission path ~~104~~ 200.

Please amend the paragraph on page 72, line 25, to page 73, line 14, as follows:

FIG. 15A is a diagram showing the configuration of a transmission system 15 ~~10~~ of a fifteenth embodiment of the present invention. In FIG. 15A, the transmission system 15 includes a transmitter apparatus 500, an optical transmission path 200, a receiver apparatus 320, a first wireless terminal 401 and a second wireless terminal 402. The transmitter apparatus 500 and the receiver apparatus 320 are connected via the optical transmission path 200. The transmitter apparatus 500 includes a first pulse train generating portion 501, a second pulse train generating portion 502, a synthesizing portion 161, and an optical modulating portion 162. The receiver apparatus 320 includes a pulse compressing portion 321, an optical detecting portion 301 and a radiating portion 312. In FIG. 15A, the block having the same function as in the third or the fourteenth embodiment bears the same referential number and description thereof will be omitted.

Please amend the paragraph on page 76, line 6, to line 21, as follows:

Next, the operation of the transmission system 16 will be described. The configuration of this embodiment is similar to the configurations of the fourteenth and the fifteenth embodiments (see FIGS. 14 and 15) described above, and therefore only different aspects will be described below. The filter portions 511 and 512 are inserted between the first and the second pulse train generating portions 141 and 142 and the synthesizing portion 161, respectively, to limit the band of the pulse train (a) (see FIG. 16B) that is output from each pulse train generating portion, so that the pulse width is increased, that is, the rising time/falling time is increased and is output (see FIG. 16C). The pulse compressing portion 321 receives an optically modulated

signal that is transmitted via the optical transmission path ~~104~~ 200, and compresses the modulation information (pulse width) thereof, that is, reduces the rising time and/or the falling time of the modulation information, and outputs it (see FIG. 16D).